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BEING THE

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OF THE

ESSEX FIELD CLUB.

EDITED BY

WILLIAM COLE, F.L.S., F.E.S.,

Honorary Secretary and Curator.

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The Authors alone are responsible for the statements and opinions contained in their respective papers.

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The Fauna and Flora of Essex,

As Illustrated in the

ESSEX MUSEUM OF NATURAL HISTORY.

I have great pleasure in announcing that the Essex Museum of Natural History has now been furnished with four blocks of handsome Cabinets intended to contain a County series of Insects, Mollusca, and Crustacea. Several new Wall-cases have been made so as to suitably accommodate the Collection of British Mammalia, which has lately received numerous additions, including models (the work of Sherrin Bros.) of the Essex Cetacea. We have also constructed eight Herbaria Cabinets, to house the series of specimens of Flowering Plants, Mosses, Algæ Lichens, &c. More space can now be allotted to the collection illustrating the works of Early Man, and this is also being re-arranged. Work on these collections will now be taken in hand, and it is hoped that they will prove helpful to students, and will lead to a greater interest being taken in the Essex Fauna and Flora. To aid in this work we are acquiring some of the best Faunistic books on British Natural History, which will be available for consultation in the Museum itself.

I need not point out to my fellow Members and friends the great difficulty often experienced in obtaining authentic specimens from a limited district. I should highly esteem any aid that County and London Collectors could afford. Localised specimens of Essex Birds, Fish and Mammals, Insects of all orders, Land and Freshwater and Marine Shells, Plants, etc., if in good condition, will be of the greatest assistance, and donors will have the satisfaction of knowing that their specimens will be properly preserved, and will be available for study in the future.

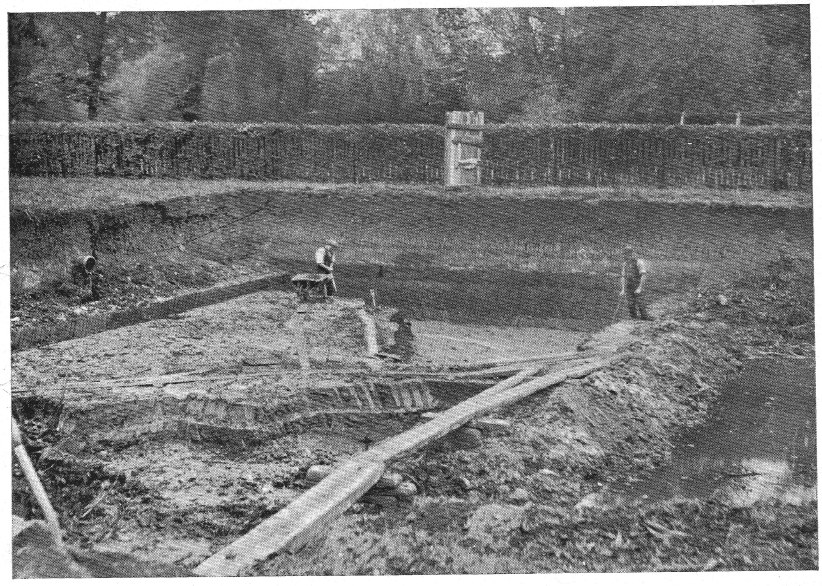
Birds, Fish and Mammals in the flesh may be forwarded direct to the Taxidermists, Messrs. Sherrin Bros., 38, Fielding Road, Chiswick, London, W. A post card should precede the specimens. Carriage may be charged forward.

WILLIAM COLE,

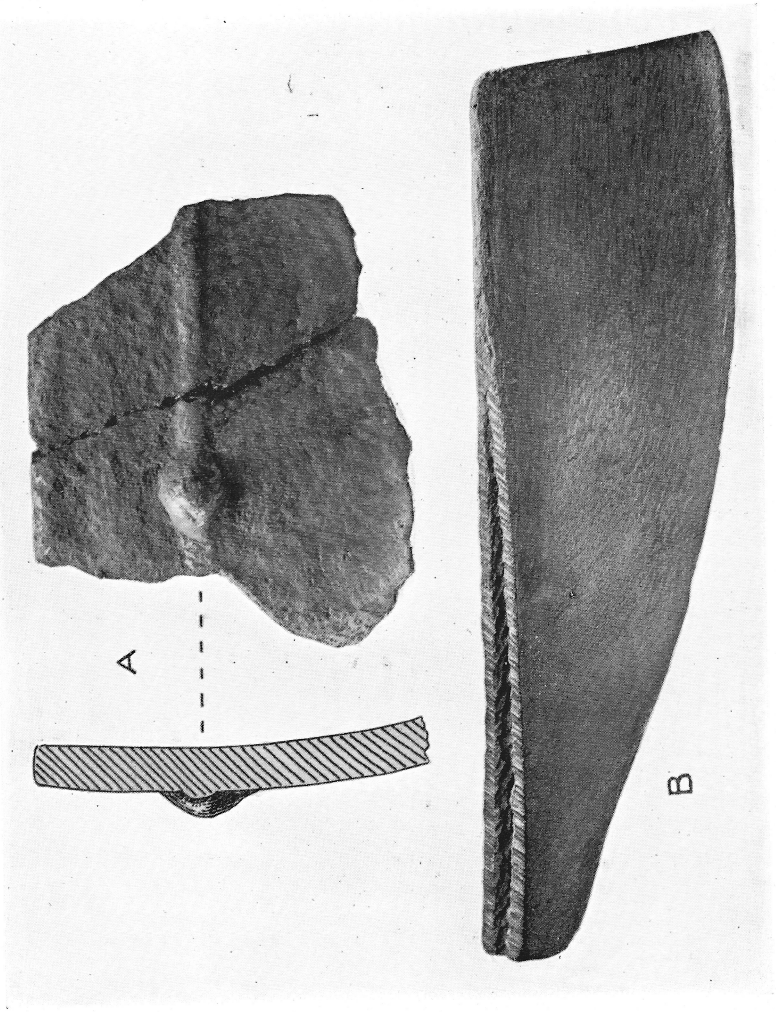
Hon. Secretary and Curator.

ESSEX MUSEUM OF NAT. HIST.,
ROMFORD ROAD,
STRATFORD, ESSEX.

January, 1906.



Figs. 1 and 2.—SKITT'S HILL, BRAINTREE.
General Views of Excavations.—For explanations, see text.



OBJECTS FROM SKITT'S HILL, BRAINTREE, ESSEX.

A. Fragment of Hand-made Pottery, one-half natural size.

B. Portion of Sawn Rib-bone, two-thirds natural size.

FURTHER NOTES ON THE PILE-DWELLING SITE AT SKITT'S HILL, BRAINTREE, ESSEX.

A REPORT ON THE EXCAVATION OF A PORTION OF THE RELIC-BED, OCTOBER, 1900.

(With Plates XXVI. and XXVII. and numerous Illustrations)

By F. W. READER.

[*Read November 26th*, 1904.]

IN the report of Mr. Kenworthy's discoveries at Skitt's Hill[1] it was mentioned that there was a portion of the relic-bed uncovered, which was shortly to be excavated. The hope was expressed that the Essex Field Club would endeavour to obtain permission to excavate this portion, in order to be able to examine it more closely than was possible when it was merely being dug to obtain the material for brick-making. Unfortunately the time and resources of the Club were so absorbed in the preparation of the Museum at West Ham that it was found to be impossible to do anything in the matter at that time.

During the month of October, 1900, the brick-makers again commenced digging, and on my hearing from Mr. Kenworthy that a favourable opportunity had arrived for seeing the section, I at once went to Braintree and watched the operations continuously for three days, when all the exposed bed at this level was dug out.

During the time I was able to make several sketches and photographs of the sections and had the opportunity of examining the deposit with some thoroughness.

This observation proved to be in no way conclusive as regards its being a pile-dwelling site, but revealed some points which may be of use to those who in the future find opportunities to interest themselves in the locality.

The most important result of my visit was to obtain a more accurate section of the bed of the stream than that published in the former report.

In the section previously published, the river bottom is represented at about 10 feet from the surface. The brick-makers dig to this depth, after which the digging is abandoned, not because the bottom is reached, but in consequence of the cutting becoming waterlogged.

1 ESSEX NATURALIST, Vol. XI., pp. 94-126

The accompanying view (Fig. 1, Pl. xxvi.) is taken looking to the S.E., down the course that has been excavated, and shows the ridges that are left between successive years' work, the excavated spaces between being filled with water. The partition on which the man is standing is that which divides the portion of the bed under consideration from that previously excavated. This view also helps one to realise the appearance of the original river before its bed became silted up. The present stream, only

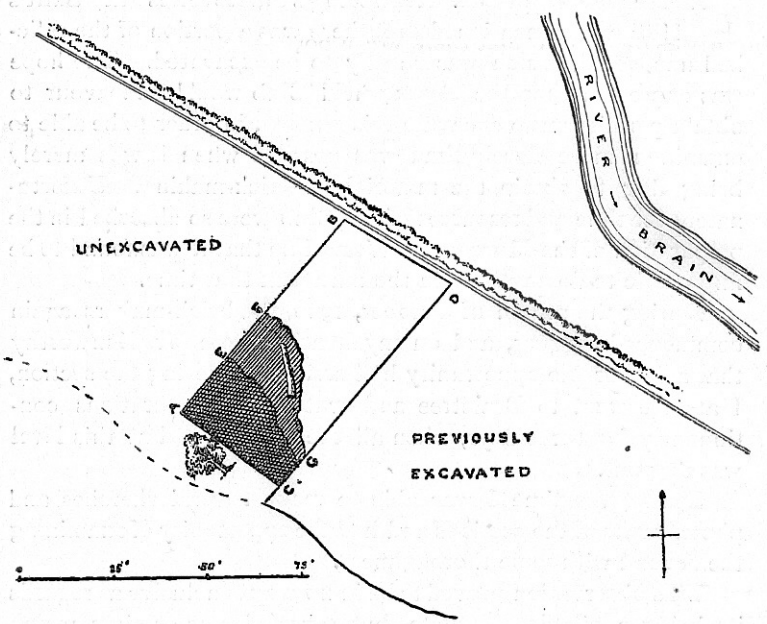


FIG. 3.—PLAN OF THE PORTION OF THE RELIC-BED, SKITT'S HILL, excavated Oct., 1900.

a few feet wide, runs between the willows seen in the mid-distance, and from the position of the spectator is some 70 feet to the left.

On ascertaining that the bottom of the clay had not been reached at the depth of 10 feet, I obtained permission to have a hole dug below this level to find the old river base. This revealed a very different state of things from what had been supposed, the bottom being found at a depth of 17 feet from the surface, or seven feet below the bottom of the relic-bed. As the hole was dug

somewhat on the side of the stream, the deposit would probably be a little shallower than at the centre. This depth of the alluvium agrees with that given by Mr. W. H. Dalton, F.G.S., in the *Geological Survey Memoir*,[1] where he states that the section showed in 1872 "sixteen to eighteen feet of fine grey and buff loam resting on a thin bed of sandy gravel, in a broad shallow hollow of the London Clay."

A general view of the excavation is given in Fig. 2., Pl. xxvi. This is taken from the point C on plan, Fig. 3, and shows at the far end the section on the line B—D, which is parallel with the hedge, and is the part furthest from the edge of the original stream on which the spectator is standing.

The lower part of this section, which has come darker on the photograph, consists of washed clay, containing no organic remains. The overlying light portion is alluvial brick-earth, above which is the darker surface soil. The man with the wheelbarrow is standing on the top level of the relic-bed, but in this portion of the filling the characteristic black earth containing wood extends from the bank on which the spectator is standing only to about the spot marked by the drain-pipe on the left of the picture. From this point it runs obliquely towards the spectator, F—G on plan, Fig. 3.

The hole, Fig. 5, was dug at the spot marked with the × in Fig. 2, Plate xxvi.

A.F.G.C. The upper portion of the Relic-bed, consisting of a sandy clay about one foot in thickness, and fairly well conforms to the first spit of the bed. It should be explained that the workmen dig the deposit in spits of a foot deep, a method of great service in keeping the relics distinct in their proper levels.

A.E.G.C. Part of the lower portion of the relic-bed, composed of very black earth and sand, largely mixed with fragments of wood, twigs, and leaves. Beyond the darkly shaded portion this level of the relic-bed becomes almost pure white sand containing little organic matter. This extends only to within about five feet of the extent of the upper portion of the bed, shown by the dotted line and along, which lies a log 15 feet long. See Section, Fig. 5. The thickness of this layer was from one to two feet.

F.B.D.G. Fine washed clay.

It will be seen that the mixed earth of the relic-bed extends from the side of the stream only about 17 feet on the line C—G, running obliquely into the bed of the stream to a distance of about 50 feet on the line A—F. The thickness of this deposit was greater by about one foot at C—G than at A—F.

All the rest of the filling at this level, the unshaded portion on the plan F.B.D.G., was the normal clay filling of the stream.

For general section and explanation see Fig. 4 on page 140.

This diagram (Fig. 5) shows the portion of the relic-bed level which differs from the general filling of the stream in being principally composed of sand, and contains quantities of wood,

1 *Sheet 47, N.W. Essex and N.E. Herts*, p. 66.

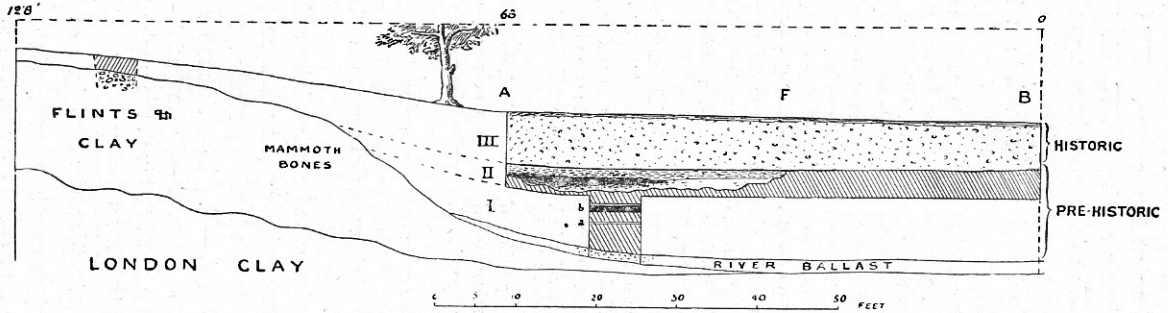


FIG. 4.—GENERAL SECTION AT EXCAVATIONS AT SKITT'S HILL, BRAINTREE.

I. Washed clay, with seams of gravel and black earth.

II. Sand and silt containing quantities of wood, &c.; this forms the relic-bed which extends from A—F and rests in clay similar to I.

III. Brick-earth, rain-wash, containing { 1 Modern objects; 2 Mediæval ,,; 3 Roman ,,

etc. Below is projected the additional filling found by the hole that was dug below the level of the brick-making excavation.

1.—Sandy clay mixed with wood. This layer fairly well conforms to the first spit, 12 inches deep; it represents the upper portion of the relic-bed, where in former diggings the greater proportion of relics of human agency were found.

Nine burnt flints and three flint-flakes occurred.

2 and 2A.—The lower portion of the relic-bed, which was very irregular and consisted for the most part of sand, one to two feet deep. At the end nearest the bank of the stream (A) the soil was very black, containing a quantity of vegetable remains, but this only continued for a distance of about 17 feet, when it merged into white sand; (2A) which extended for another 12 feet, but this stopped about five feet short of the end of the layer above it.

In the white sand very little wood or other organic matter occurred. Three

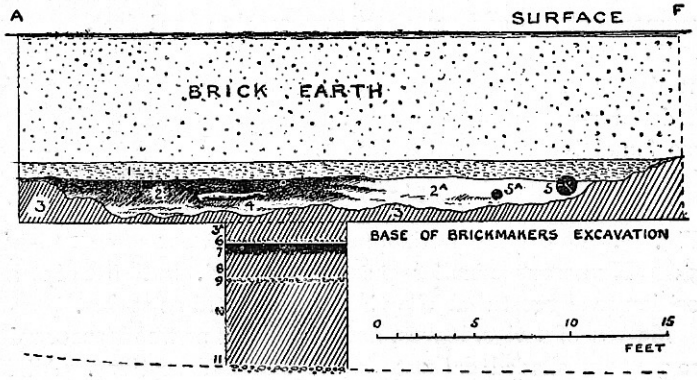


FIG. 5.—ENLARGED PORTION OF RELIC-BED ON LINE A—F.

burnt flints, three rib-bones, and seven vertebræ, (?) red-deer. A quantity of hazel nuts were found in the black soil.

3.—Fine, grey, washed clay, which ran irregularly, rising almost to the top of spit II. at A and to the top of spit I. at F, forming a basin in which the relic-bed rested.

No wood or other objects occurred in the clay.

3A.—Fine grey, washed clay, the continuation of the deposit underlying the relic-bed and extending below the base of the brickmaker's excavation to the depth of one foot.

No organic remains.

4.—Log lying horizontally, four feet six inches long.

5.—Large log, 15 feet long, lying along the edge of the relic-bed, see plan, Fig. 3.

5A.—Small log lying transversely.

6.—A layer of small pebbles and white sand, one inch thick.

7.—Very black peaty deposit, containing quantities of leaves, eight inches thick, hazel nuts, acorns, and plentiful remains of insects.

This layer had very much the appearance of the bottom of a forest pond, mixed with animal excrement, and was probably the edge of a very sluggish stream where animals came to drink.

Some of the soil containing the insects has been kindly examined by Mr. G. C. Champion, F.E.S.; he reports, however, that the remains are too fragmentary for identification.

8.—Fine washed clay, one foot deep, similar to 3 and 6.

9.—Pebbles and sand, two inches deep.

10.—Washed clay, four feet six inches, similar to 3, 6, and 9.

11.—River ballast, base of old river at a total depth of about 17 feet from the present surface.

By probing this ballast was found to run up towards the bank somewhat sharply.

RELICS.

ANIMAL REMAINS.—The only bones which occurred were fragments of ribs and vertebræ, apparently of red deer.

THE WOOD.—Though not so plentiful as in former parts of the diggings, a great quantity of wood came from the portion shaded darkest on the plan (Fig. 3). A large log, 15 feet long, was found lying along the line of the sandy deposit F—G on plan, 5 on the section (Fig. 5).

Two large pieces of timber are shown in the section (Fig. 5). One lying horizontally (4); another shown end-wise (5). Numerous smaller pieces occurred, but not in any position to suggest that they had been placed as stakes.

Masses of twigs, leaves, and fragments of wood occurred in the portions shaded darkest on the plan and sections. All the logs were denuded of roots and branches.

A number of fragments have been examined by Mr. George Ellis, who has identified the greater quantity as oak, with a few pieces of elm and willow.

THE POTTERY.—Nearly all the pottery has come from the brick-earth overlying the relic-bed, and is of the Romano-British period.

The workmen, some of whom have been working here for upwards of fifteen years, told me that the lowest level at which pottery has been found is quite on the top of the relic bed, but it has rarely been found at this level.

Some fragments of coarse pottery, but of uncertain age, were mentioned in the former account as coming from the relic-bed.[3]

From the present portion we have an interesting fragment of definite character found at a depth of 6 feet 6 inches, which is

3 ESSEX NATURALIST, Vol. xi., p. 113.

the surface of the relic-bed. This is black hand-made pottery of the bronze or early iron ages. (A, Plate XXVII.)

In the brick earth above were several fragments of Romano-British pottery, from depths of 2 feet to 4 feet 6 inches. These have been recorded by Mr. Kenworthy as they have occurred from time to time during the removal of the brick-earth, and sent by him to the museum to be added to the other objects from this site. They are mostly of the grey ware with the base of a large pot, nine inches wide, of black ware, red inside.

General Remarks.

It would seem that this portion of the relic-bed was an unfavourable place from which to obtain evidence relating to the pile-structures. From the small portion of this level that was occupied by the black earth characteristic of this bed and the scarcity of the relics as compared with the portions previously excavated, it would appear to represent a break in the artificial construction, if such it be.

There was nothing in the position of the logs to warrant the supposition that they had been placed to secure the bed. The large log lying along the edge of the deposit might be considered to indicate its having been so placed to protect the bed on this edge. (See *Plan*, Fig. 3, and *Section*, Fig. 5.)

On the other hand it might be argued that the black deposit had accumulated there owing to the log having fallen in that position. The logs being stripped of their branches might equally be the result of rolling in the stream as that of human agency, and in fact logs are usually so found in alluvial deposits.

During the whole history of this river since it began to fill up the old bed, it seems to have been an extremely sluggish stream, depositing very fine clay from the base up to a height of 10-11 feet, over which, largely by the action of rain wash, the brick-earth has accumulated. It is interesting to notice that this change in the deposit from clay to brick-earth appears to have taken place about the period of the Roman occupation.

The only breaks in this slow regular deposition are seen first at *a* (I., Fig. 4), where a layer of pebbles and sand occurs. This is a thin layer only two inches deep, but shows some short and temporary change, during which the carrying powers of the

stream were greatly increased, after which the normal conditions are resumed, and a further 12 inches of fine clay is deposited.

Again at b (I., Fig. 4) comes a seam of very black earth, eight to ten inches deep, largely composed of organic matter, which shows that the stream had assumed lacustrine conditions, either through a lowering of the level of the land or the passage of the stream having become obstructed. This state of things must have lasted for a considerable period for such a depth of leaf mould to accumulate, even allowing for the probable greater luxuriance of the vegetable growth of that time.

This period of quiescence was followed sharply by one of activity, which suggests the bursting of a dam, for the top of the black earth was covered with a thin layer of sand and pebbles to the thickness of an inch. Overlying this, the fine clay is again regularly laid, followed eventually by the brick-earth and surface soil.

The uppermost deposit of clay is broken at the side of the stream by the irregular and mixed deposit, considered to be the artificially constructed platform of the pile-dwelling community. This contains stones and other objects which seem to be beyond the carrying power of the normal stream at the time, judging by the portion of the deposit at the same level, but nearer the centre (see section, Fig. IV.) unless we are to regard this irregular deposit as a buried channel, the result of excessive flood, cut in the regularly laid clay. The probability of this view is increased by the sandy nature of the lower portion of this deposit.

Although the examination here recorded has not given definite evidence of the pile-structures, it serves to throw some light on the age to which the relic-bed belongs by the addition of the underlying deposits to the section.

The relic-bed having previously been supposed to rest directly on the base of the old river, it was concluded that it represented the entire accumulation since the silting up of the stream bed. Owing to this it was further held to have been occupied by man as a dwelling site from Neolithic times down through the bronze and early iron ages.[4]

From this misconception of the actual facts Mr. Kenworthy was led to say:—

"I think that the silting up has been much more rapid since the occupation by the Romans, owing probably to the destruction of the forest and its under-

4 ESSEX NATURALIST, Vol. xi., p. 116.

growth, the land cultivation and the baring of the virgin soil. Bearing this consideration in mind, we may say that the pre-historic accumulation was perhaps ten times slower than the Roman, and that of recent times much more rapid than the Roman and Mediæval."[5]

With the section as now revealed, this view must be considerably modified. Instead of the relic-bed resting directly on the river-ballast, we have beneath it an alluvial accumulation of 7-8 feet, or a total depth from the surface of 17-18 feet. Mr. Kenworthy has given us the depth of 4 feet 6 inches from the surface as the lower horizon at which Roman objects occur; we now have 13 feet of deposition below this representing pre-historic accumulation.

As the silting-up of our present river-system is generally considered to be coeval with the commencement of the Neolithic period, the assignment of the Skitt's Hill pile-structures to this era was, perhaps, incontrovertible so long as their foundations were said to rest close on the river base, and Mr. Kenworthy might well suppose that the silting-up of the river was so much slower in pre-historic times, if after continuous occupation through the long period of the Neolithic and Bronze ages only about three feet of filling had been accumulated, while above was about 6 feet 6 inches, representing the comparatively brief period of historic times.

The brick-earth provides very little reliable evidence as to period, owing to its being the result of rain-wash. It may consequently contain objects derived from higher levels, which would not occur in any regular order of superposition. Romano-British pottery extends more or less throughout this deposit. Although some of the pottery may be of the class now recognised as late-Celtic, it is impossible to decide this from the fragments that have come to hand. Many of the forms of late-Celtic pottery survived into the Romano-British period, and are commonly found in association with the more purely Roman shapes. It is only when late-Celtic pottery is found quite distinct from Roman relics, that it can be taken as any indication of an earlier age.

In the absence of positive evidence, therefore, I have thought it better to omit any portion of the rain-wash as being late-Celtic, and simply to divide the whole filling of the stream broadly into historic (including Romano-British) and pre-historic.

5 *Ibid.* p. 99.

Below the brick-earth comes the upper surface of the relic-bed, which is also the level at which the alluvial clay terminates in the general filling of the stream's bed.

It seems certain that no Roman pottery has ever been found at this depth, and that we may safely place this deposit as pre-historic. It is here that all the remains have occurred which have been thought to indicate the existence of pile structures.

It was pointed out in a note to the former account[6] that the occurrence of stone implements and flint flakes is not necessarily an indication of the Stone-age.[7] Stone implements have frequently been found in association with later remains, while flakes occur in great numbers in the Romano-British villages, exceeding the proportion found in the settlements of the Bronze Age. Large numbers of flint flakes also frequently accompany the interments of the Anglo-Saxons. The great abundance of flint-flakes in Roman times was referred to by General Pitt-Rivers in his address to the Archæological Institute, 1897.[8] He indicates difficulty of accounting for these, and suggests the use of the tribulum and their uses for other agricultural purposes.

Although no object of metal has yet been produced from the relic-bed at Skitt's Hill, it has also been pointed out that this cannot be regarded as evidence of the Neolithic age of the deposit in the face of the abundant evidence of the use of metal tools on the antler and bone objects.

Another example of this indication is here presented (Fig. B., Plate XXVII). This piece of rib-bone bears unmistakable marks, produced undoubtedly by a good metal saw, while its peat-stained condition shows clearly that it came from the relic-bed. This object was discovered in the previous excavation, but was by an oversight omitted from the former report.

In the filling under the relic-bed we now have the the deposition that may be attributed to the earlier divisions of the present geological period, viz., the Neolithic and the Bronze ages, while the relic-bed may with more reason be considered to represent the early Iron age, the period to which most of the relics that have been produced from it seem to belong.

If, then, this fresh evidence serves to remove any grounds for supposing the Skitt's Hill pile-dwelling site to be of Neolithic

6 ESSEX NATURALIST, Vol. xi., p. 119
7 *Ancient Stone Implements*, Sir John Evans, p. 282.
8 *Cranborne Chase*, Vol. IV., p. 17.

age, it at least adds to the interest of Mr. Kenworthy's discoveries, and contributes to the probability of his conclusions being correct by bringing the site in point of time more into line with similar discoveries elsewhere in this country, which, as Dr. Munro has pointed out, are mostly of later date than those of the Continent. Apart from this particular consideration, regarding which so little fresh evidence has been adduced, the filling of the stream presents features sufficiently interesting to warrant their record.

[The Club is indebted to Mr. Reader's kindness for the blocks illustrating his paper.—ED.]

SELENITE.

BY W. H. DALTON, F.G.S., F.C.S.

IN his paper on Sulphate of Lime in Essex Soils and Subsoils, published in the ESSEX NATURALIST (*ante*, pp. 62-4), Mr. Dymond advances a novel view to account for the crystals of selenite in the London Clay, viz., that the sulphate of lime is supplied by the surface soil. He furnishes statistics to show that the rainfall of 13 years would, apart from impoverishment by the removal of crops, wash out all the sulphate in the soil, and argues, incontestably, that continuous replacement must be in process. But for this he suggests that the lime is supplied by the farmer, the sulphuric acid by the rainfall. The alternative source which he propounds for the acid, fermentative action in the soil, is an alternative more apparent than real, in that fermentation, or any process, biological or chemical, can affect only the matter coming within its sphere of action; it may modify the compounds present, but cannot create such as are absent, and I may remark that one such process is to separate, not to unite, sulphuric acid and lime. The source of the sulphur, then, is the point at issue; geologists generally say it is iron-pyrites; Mr. Dymond, rainwater.

That the water in house-tanks contains sulphates is undeniable, but are not these derived wholly from the soot of coal-smoke, the bulk of which is precipitated on the roofs collecting the rainwater? What amount of sulphates would be found in rainwater collected at a distance from such sources of sulphur as coal-fires, brick-kilns, and sea-spray. And why are not the waters off the chalky boulder-clay

charged with sulphate of lime far more heavily instead of much less so, than the London-Clay waters, seeing the ample natural supply of the calcareous element. The boulder-clay land is improved by lime-dressing, where the surface-soil has been impoverished by the removal of its calcareous matter, but if any sulphurous rainwater can percolate into the mass of the boulder-clay (which Mr. Dymond holds to be permeable), there should be far more abundant crystals of selenite formed there than in the almost limeless London Clay; but none such are to be found.

That the London Clay requires lime-dressing is *prima facie* evidence of the normal acidity of the clay when the finely-divided pyrites (to which the blue colour is due) has been oxidised by atmospheric action into iron-sulphate and free sulphuric acid, which in the absence or deficiency of lime or alkali has to remain unneutralised.

I would therefore answer Mr. Dymond's closing query in the full negative; it is not conceivable that the selenite in the London or any older clay derives either its lime or its sulphur from external sources; it owes a part only of its oxygen to the air, and its water of crystallisation to the rain; the important constituents are native to the deposit. If I mistake not, selenite nowhere occurs in superficial deposits, nor in unweathered and absolutely impervious clays. The action of water charged with oxygen is essential to the disruption of the pyrites, but it seems necessary for the production of crystals that the supply of the ingredients be slow, and under conditions which as yet we have not been able to determine.

A totally different problem is presented by the sulphate of baryta, constituting the crystalline lining of some septaria. In what condition was this almost insoluble mineral or its constituents, at the time of the contraction of the nodule, and the infilling of the radiating and concentric fissures resulting? The recently-detected occurrence, in a Lias septarium, of zinc-blende is a kindred puzzle.

NOTE BY MR. DYMOND.

While I must defer to Mr. Dalton's opinion that selenite nowhere occurs in superficial deposits of the London Clay, I do not think the arguments he adduces against my suggestion "that a part of the sulphate of lime that hardens the water

. . . . may be due to the interaction of sulphuric acid and lime in the surface soil" are very convincing.

If the boulder-clay is pervious to rainwater (which I assumed on agricultural grounds, and because the clay of the chalky deposites is granular and not colloidal), any sulphate of lime would be dissolved away, and no accumulations would be expected. I think Mr. Dalton is mistaken in supposing that rainwater owes the whole of its sulphuric acid to the combustion of carbonaceous fuels, though it undoubtedly owes most. Nor can I agree that a London Clay soil requires lime-dressing mainly because of the production of sulphuric acid from pyrites; the de-calcified Boulder-clay requires lime-dressing just as much.

The subject, which is one of great practical importance is more fully discussed in the May number of the *Journal of Agricultural Science* (1905, page 217).

T. S. DYMOND.

A WHALE AT MERSEY IN 1299.

By J. E. HARTING, F.L.S., F.Z.S.

THE extract from the *Wardrobe Accounts of King Edward I.* quoted by Mr. Miller Christy in the last number of the ESSEX NATURALIST (*ante* p. 135), having reference to the occurrence of a supposed whale at Mersea in 1299, is of much interest and suggests a little criticism. For two reasons it appears to me doubtful whether the Latin word *balena* (or *balæna*) is in this case rightly applied to a whale. The entry in the accounts referred to includes a charge for supplying an empty cask for the purpose of transporting the creature to Stanford, from which we are to infer either that the animal, if a whale, was a very young one, or that the cask was a very large one. Again the name *balæna* (φάλαινα), as I shall presently show, was formerly sometimes applied to the porpoise. It will be of interest to look at some of the earliest applications of the word, which, almost needless to say, are to be found under the head of "Fishes."

In the *Colloquy of Archbishop Alfric*, of the 10th century, composed with the object of teaching the Anglo-Saxon scholars Latin (Mus. Brit. Bibl. Cotton *Tiberius*, A. iii.) there is an amusing dialogue with a fisherman in which the A.S. *hwæl* is rendered in Latin *cetus* and *balæna*, both these words

occurring sometimes in the same sentence. For example, the fisherman who describes himself as accustomed to fish from a boat with nets as well as with a hook (*hamus*, A.S. *angil*) after enumerating the different kinds of fishes taken by him in fresh-water, is asked why he does not fish in the sea. He replies that he does so sometimes, but that it necessitates having a larger boat. To the enquiry whether he cares to catch a whale (*cetum*) he answers, "No, because it is too dangerous. He is safer on the river in his own little boat than going off with a fleet of larger vessels whaling." "Quia periculosa res est capere *cetum*. Tutius est mihi ire ad amnem cum nave mea, quam ire cum multis navibus in venationem *balænæ*"; adding that it is preferable to catch a fish that he can kill, than to pursue one that might kill him or sink him, and his companions too. This fisherman was wise in his generation.

Apart from its bearing on the present question, the dialogue quoted is of interest as showing that the Anglo-Saxons were not unacquainted with the whale-trade, of which fact, moreover, there is other evidence.

If we turn to the supplement to *Archbishop Alfric's Vocabulary* —the oldest document of the kind in the English language— printed in Wright's *Vocabularies*, vol. i., 1857, we find under "Nomina Piscium" *hwæl*, balena, vel cete, vel cetus, vel pistrix.[1] While in another Anglo-Saxon Vocabulary of the 11th century, printed in the same volume, only "cetus" (whence the modern *cetacean*) is given, as if the more preferable word.

In a semi-Saxon Vocabulary of the 12th century, however, this word is glossed *mære-swin* (Germ. *meer-schwein*, Fr. *marsouin*), that is sea-hog, or porpoise (deriv. *porc-pisce*), though in the Supplement to *Abp. Alfric's Vocabulary*, above mentioned, the *mære-swin* is identified with the Dolphin.

In a Pictorial Vocabulary of the 15th century, stated by Wright to be preserved in a MS. in possession of Lord Londesborough, we find *Hæc balena*, anglice "a porpeyse."

From these examples, then, it will be seen that both before and after the date of the entry in the Wardrobe Accounts of Edw. I. the word "balena" was used with so uncertain a signification as to render it very doubtful whether the animal captured on the Essex coast in 1299 was of a species to which

1 *Pistrix* used for any sea monster, whale, shark, or saw-fish, the last named being that to which the modern form *pristis* is exclusively applied.

that term would be applied by zoologists at the present day, while the statement that an empty cask (*dolium vacuum*) was provided for its removal from Mersey Island to Stanford renders it more probable that the creature was, not a whale, but a porpoise, more especially as the capture took place in the month of May.

Two slight misprints in the Latin extract may be corrected, namely, *cum expens' unius hominis equitio* should read *hominis equitis*, and in the footnote *eadem balæna* instead of *balona*. Mr. Waller criticising the expression *usque Staunford ad curiam*, says it is not apparent what court is meant. Probably we are to understand that in the month of May, 1299, the King and his court happened to be sojourning at Stanford, and so thither the so-called "whale" was carried as "a royal fish" to the Sovereign.

A discussion of this point would carry us too far from the subject, but it may be stated that from the *Quo Warranto* Rolls, temp. Edw. I., it appears that a stranded whale belonged as "a royal fish" to the king, but might be claimed as a "wreck of the sea" by any subject able to prove that he and his ancestors had been "immemorially in seizin of all manner of wreck of the sea, to wit royal fish, wrecked ship, and of all other things which would be called wreck of the sea." Whether at the present day in a claim against the Crown for a stranded whale a plea would be of any avail which averred that "a whale is not a fish," would be a question for the lawyers to settle; it would at all events give rise to an amusing conflict of opinion between the law-officers of the Crown and the zoological experts who might be called as witnesses on behalf of the claimant.

An earlier instance of the occurrence off the Essex coast of a cetacean of some kind is mentioned by Mathew Paris in his *Chronica Majora*, wherein we read of a whale which, coming up the Thames in the year 1240, could scarcely pass between the piers of the bridges, and was driven up the river as far as Mortlake. "Ad manerium autem regis quod Mortelac dicitur, insequentibus multis navigatoribus cum unfibus et balistis et arcubus perveniens, ibidem jaculorum ictibus vix est peremptus." This may have been a small Rorqual, but from its ability to pass the bridges is more likely to have been a Porpoise. An Essex specimen of Rudolphi's Rorqual (*Balænoptera borealis*) was captured

at the mouth of the river Crouch in November, 1883 (*Zool.* 1884, p. 27). It was claimed by Sir Henry Mildmay as lord of the manor, and on legal proceedings being taken to settle the question of ownership, a verdict was found in his favour. In October, 1887, another specimen of Rudolphi's Rorqual was taken in the Thames off Tilbury, an account of which was given by Mr. Walter Crouch, with an illustration, in the ESSEX NATURALIST, 1888, pp. 41-46.

THE CORRESPONDING SOCIETIES' COMMITTEE OF THE BRITISH ASSOCIATION,

LONDON, 1905.

REPORT OF THE CLUB'S DELEGATE.

F. W. RUDLER, I.S.O., F.G.S., *Vice-President E.F.C., Secretary of the Conference of Delegates.*

[*Read November 25th*, 1905.]

IT is usual for the Delegates from the Local Societies to meet in Conference during the Session of the British Association, at its place of meeting. But as the Association met this year in South Africa, it could hardly be expected that the Delegates would assemble there; and it was consequently suggested by Mr. Whitaker, F.R.S., the Chairman of the Corresponding Societies' Committee, that a Conference should be subsequently held in London—a suggestion which met with the approval of the Council of the Association. Accordingly a Conference was held on Monday and Tuesday, October 30 and 31, at the Rooms of the Linnean Society. It was satisfactory to find that it was attended by nearly thirty delegates, representing places as distant as Belfast, Perth, Glasgow, and Paisley. The Conference was presided over by Dr. A. Smith Woodward, F.R.S., and was in every way a most successful meeting.

The Chairman, in opening the Conference, delivered an address, in which he dealt sympathetically on the value of the work done by many of our local societies, but deplored the tendency in certain quarters to allow the picnic element and other sources of popular attraction to assert undue influence. With regard to the evening meetings, he referred, not without approval, to the practice of making a special feature of "exhibits," and threw out the suggestion that papers on the unsolved problems of science might be found extremely useful

to students. "We are distinctly in need of a series of books to treat of ignorance rather than knowledge." The Chairman was not disposed to hide the fact that the local societies had not followed to any great extent the organised lines of research which had been suggested from time to time at the annual Conferences; but he found a partial explanation of this neglect in the spirit of individualism, so characteristically British, which penetrates even to our scientific societies. "We cannot endure the feeling that we are merely units in the working of an organised machine; we all wish for freedom to follow our own inclinations."

Dr. William Martin, of the Temple, introduced a discussion on "The Law of Treasure Trove, especially in relation to local scientific societies." He held that in the interest of archæology the law, so far from being abolished, as some have suggested, should rather be extended. Meanwhile, he suggested that printed notices should be sent to every post office, where they should be publicly displayed, in order that it might be generally known that any finders of valuable antiquities would be reasonably, or even liberally, rewarded.

Mr. W. Morris Colles, the Director of the Authors' Syndicate, and Mr. Harold Hardy, of the Temple, explained to the delegates the present Law of Copyright as it affected the proceedings of scientific societies. It appears that if a paper be read at a society, where the audience consists only of its members and a limited number of invited persons, the author is entitled to its copyright, but if read before a meeting to which the general public are admitted the author can only protect his copyright by certain legal methods of a cumbrous character. With regard to lectures orally delivered, in which the lecturer has at present little or no protection, Mr. Hardy suggested that the law relating to lectures should be made analogous to that which rules in the case of plays. In the discussion by the delegates, the general opinion seemed to be that scientific societies had no wish to restrict the re-publication of any of their papers, since this, if duly acknowledged, was rather a compliment to the Society, and decidedly assisted in the dissemination of scientific knowledge.

At the second meeting Professor G. S. Boulger initiated a most interesting discussion on the Preservation of our Native

Plants. As many plants are in serious danger of extermination by trade-collectors, students of botany, and others, it seems necessary to appeal to legislation for their protection; but it was suggested that before this could be secured, a leaflet might be distributed among teachers, and, perhaps, a "Reader" published, explaining the danger to which certain rare plants are subjected, and pleading for the conservation of objects of natural beauty and scientific interest. The subject was warmly taken up by the delegates, and their local influence at field-meetings and in nature-study classes will probably be of much service.

It is the usual practice at the annual Conference of Delegates to receive reports from the Committees of the several sections of the Association, with reference to any local work which might be usefully undertaken by the Societies. In consequence, however, of the meeting having been held this year in South Africa, the sections were not sitting during the London meeting. For this reason no detailed reports or suggestions were received, but a few of the secretaries of the sections had sent short letters, one of which ought to be of some interest to our Club. Dr. H. W. Marett Tims, of Cambridge, who acted as Secretary of the Section of Zoology in South Africa, wrote explaining that he had not been able to communicate with the Sectional Committee, but on his own responsibility suggested the following subjects as worthy of local consideration, namely :—

1. A systematic study of the fresh-water Plankton of East Anglia.
2. A study of the Rotifera of East Anglia.

This suggestion your delegate undertook to bring to the notice of the Essex Field Club, and if some local naturalists can be induced to follow it up, the Conference may be indirectly the means of adding something to our knowledge of East Anglian zoology.

THE ESSEX FIELD CLUB.—REPORTS OF MEETINGS.

VISIT TO SAFFRON WALDEN DISTRICT, ASHDON, WIMBISH, WENDENS AMBO, &c.

EASTER MONDAY, APRIL 24TH, 1905.

Conductors: The President (Mr. Miller Christy, F.L.S.), Rev. C. E. Barnes, and Mr. Guy Maynard, *Curator of the Saffron Walden Museum.*

The object of this Meeting was mainly to renew our acquaintance with the interesting plant, the true Bardfield Oxlip (*Primula elatior*, Jacq.), by visiting several woods in the charming district in which it is a native. Mr. Christy is the authority on the distribution and variation in this country of the Oxlip, and very full information will be found in his papers on the subject in vol. iii. of the *Transactions of the Essex Field Club* and in the *Journal of the Linnean Society* vol. xxxiii.).

We had also the benefit of the presence of Mr. W. Bateson, F.R.S., and Mr. E. R. Punnett, M.A., the well-known students of variation and "Mendelism" in plants and animals.

The company assembled at 10 o'clock at Saffron Walden, and a public breakfast was served at the "Rose and Crown" Hotel, the President in the chair. By the kindness of Mr. Maynard each guest was furnished with a specimen of the Oxlip, the objective of the meeting.

Afterwards the very interesting museum was visited, under the direction of the Curator. Some account of the museum will be found in the report of a former visit to Saffron Walden in ESSEX NATURALIST (vol. iii., pp. 290-1).

The company was then conveyed in brakes to the several woods, where the "Primulas" were in profusion. And here Mr. Christy and Mr. Bateson gave a running demonstration and dissertation on *Primula elatior*, certainly one of the most local and interesting of Essex plants.

In the afternoon the drive was continued to the pleasant village of Wendens Ambo, where the Rector (the Rev. C. E. Barnes) met the party at the Church. The architecture was commented upon by Mr. Hugh McLachlan, F.R.I.B.A., and Mr. Barnes showed the ancient Registers, which he had recently bound up and restored.

The Rector and Mrs. Barnes most hospitably entertained the party at tea a the Rectory.

After tea a short Ordinary Meeting (the 238th) was held, Mr. Miller Christy President, in the chair.

New Members.—Mr. Jonathan Seabrooke, *The Elms, Grays*, and Mr. Joseph Wilson, *Hillside, Avon Road, Walthamstow*, were elected Members.

The President, in the name of the Club, warmly thanked the Rector and Mrs. Barnes for their great kindness and hospitality, and referred to the fact that it was on Easter Monday 25 years ago that the first Field Meeting of the Club took place, the meeting-place being Ongar (see *Proceedings E.F.C.*, vol. I., pp. viii.-x.)

Mr. W. Cole seconded the vote of thanks, and said that he was particularly grateful to Mr. and Mrs. Barnes, inasmuch as such aid as that they had afforded very materially lightened the difficulties in arranging meetings on such days as Bank Holidays.

The Rector replied in a very humorous speech, and alluded with much feeling to the friendships which had begun at the first field-meeting, and which had been maintained for a quarter of a century.

The company left by the 5.42 train from Audley End, and the ease with which the several journeys homewards were made was a demonstration of the possibilities of holding enjoyable meetings on Bank Holidays.

[It came as a great shock to all who were present, and indeed to all old members of the Club, to hear of Mr. Barnes' death shortly afterwards.

He was evidently very weak at the meeting, but with his usual spirit and good nature exerted himself to welcome the Club, and the visit to the Rectory will long remain a pleasant, if sad, remembrance with many of us.]

SPRING RAMBLE IN EPPING FOREST, AND 239th ORDINARY MEETING.

Saturday, June 3rd, 1905.

On this afternoon one of the usual spring rambles took place in Epping Forest. The party assembled at Theydon Bois Station at 3.30 p.m. The route was over Piercing Hill to the spot formerly known as Blackheath. Here is a plantation, principally of Larch, Scotch-pine, and Spanish chestnut, planted more than 20 years ago by the late Major McKenzie, the then Superintendent of the Forest. Mr. S. A. Skane (assistant in the Herbarium Royal Botanic Gardens, Kew), kindly acted as Botanical Conductor, and made some remarks on the trees here. Prof. Primrose McConnell also spoke on the growth of these trees, and on the prospects of Forestry in Essex. The ramble was then continued through Epping Thicks, and so on to Ambresbury Banks, botanical observation occupying attention, and Mr. Skan gave many lecturettes on the plants gathered. Near Ambresbury Banks another detachment of members coming from Chingford joined the party.

Tea was taken at the "Wake Arms," and afterwards an Ordinary Meeting (the 239th) was held, Prof. R. Meldola, F.R.S., Vice-President, in the chair.

Mr. George Chambers, 29, *Buxton Road, Chingford,* was elected a member.

The Chairman congratulated the members on the very pleasant afternoon's ramble, and at his request Mr. Skan gave an interesting and discursive address, touching on many botanical problems suggested by the plants gathered. He had had brought from Kew some specimens presenting special features, and explained their peculiarities.

Prof. Meldola, during some remarks, exhibited two moths taken that afternoon, *Euclidia mi* and *Venilia maculata.*

The homeward ramble was through Monk's Woods to Loughton, Mr. Skan's botanical expositions being continued on the way. The weather was delightful, and rendered the simple forest walk very enjoyable.

WHITSUN MONDAY, JUNE 12TH, 1905.

An excellent meeting had been planned for this day—to meet at Chelmsford, explore the Danbury district, and to visit Mr. and Mrs. Briscoe at Little Baddow. After the issue of the circular the weather broke and continued exceedingly stormy and unsettled, right up to the day of meeting, Very few names having been sent in, at the last moment the President and Secretaries decided with great reluctance to abandon the meeting.

PICTORIAL RECORDS OF ESSEX: SCHEME INAUGURATED.

SATURDAY, JULY 8TH, 1905.

On the invitation of the Earl and Countess of Warwick, members of the Club and many friends, in all about seventy, assembled on this day at Easton Lodge, Dunmow, the Essex seat of the family, for the purpose of inaugurating the "Photographic and Pictorial Survey of Essex." This Association was founded, as a Permanent Committee of the Essex Field Club, on the 17th December 1904, for "the purpose of gathering a permanent collection of photographs, engravings, sketches, and pictures of objects of interest, as well as maps, plans and other documents, selected with a view of giving a comprehensive pictorial history of the County of Essex, and the neighbouring rivers and sea." The general scope of the scheme upon which the Survey is working was set out by Mr. A. E. Briscoe in a paper published in the ESSEX NATURALIST (Vol. xiii., pp. 1-5), and since reprinted. To this, and to the official Prospectus, the reader is referred.

Such recognition and encouragement was quite characteristic of Lady Warwick, through whose kindness the privilege of a meeting in Easton Park was due. The bulk of the party made Bishop Stortford the starting point in the brakes, but some left the train at Takeley, where the brakes called.

The weather was gloriously fine, and the drive to Easton Lodge was much enjoyed. In the Park, the visitors had, in addition to the lovely scenery, much wild life to interest them. Hundreds of rabbits skurried to safe quarters round the base of great trees, which formed a noble avenue, and, later, large herds of deer, many possessing fine antlers, herds of cattle, and numerous sheep of special breeds were to be seen. Arriving in front of the mansion, the Countess, accompanied by her son, Lord Brooke, met the party, and gave them a cordial welcome, subsequently escorting them through the house to the lovely and extensive gardens on the north side. The Italian Garden, with its delightful lily pond, was much admired, and after roaming round a large lake, which lilies and bulrushes shared with many varieties of water fowl, the visitors returned by way of the rose garden, which was most beautiful of all.

Lady Warwick presided at the luncheon, with Lord Brooke in the vice-chair, and at the conclusion of the repast Mr. David Howard, J.P., D.L., proposed the health of the hostess, and expressed the thanks of the visitors individually and collectively for the kindness extended to them. Lady Warwick, in replying, said that she had been requested by Lord Warwick to express his regret at not being able to be with them, but he was at Brest, on a yachting cruise. She was sure the photographic project would be a very useful addition to the work of the Essex Field Club, whose members she was always pleased to welcome at Easton Lodge.

A meeting was subsequently held in a commodious double tent, amongst trees at the back of the house, furnished most comfortably and having something of an Eastern aspect. Mr. Howard again presided, and said that any of them who had studied history knew how we suffered because records had not been kept, and he often longed in vain for information on various points. The Club would undoubtedly earn the thanks of posterity if it kept pictorial records of passing events and places of interest in Essex.

Mr. Miller Christy, the President of the Club, said that the Council of the Photographic Survey was, strictly speaking, a Committee of the Field Club,

Their aim was, in brief, to write the history of the county in pictures. The scheme had been anticipated in several other English counties, notably in Warwickshire, where it had been at work for some years. In Surrey, too, a start had been made. There were in the county thousands of amateur photographers, there being 50 organised societies, and it was hoped to enlist their sympathies in the work. The financial question was not a serious one, a comparatively small sum being required for the purposes of the Survey. The minimum subscription would be half-a-crown, but many would, no doubt, subscribe more. Besides collecting current photographs, they hoped to become the custodians of many prints and engravings that already existed which threw any light on the social life and customs of the people of the county. He produced a sample collection of photographs such as it was proposed to collect, which had been contributed by the Woodford Photographic Society. The photographs were mostly half plates, and accompanying them were schedules of information as to place, time, and photographer, etc. In conclusion, Mr. Christy said he hoped people who had prints or pictures which they were willing to hand over to the Council, would communicate with the hon. secretary, Mr. Victor Taylor, at the Essex Museum of Natural History, where the photographs, etc., were to be stored under the care of Mr. W. Cole, the Curator of the Survey.

Mr. Albert E Briscoe, B.Sc., Principal of the Municipal Technical Institute, West Ham, then explained the project, and he was followed by Professor Meldola, F.R.S., President of the Royal Photographic Society, who gave further reasons why the scheme should be supported, and by Mr. F. W. Rudler, F.G.S., who thought the new project was calculated to exercise a great influence throughout the county, and the collection, interesting as it would be from the beginning, would in time become invaluable.

The Chairman brought the discussion to a close by describing the step they had taken as an act of common-sense, which had been defined as the highest kind of science.

Some remarks on the progress of the Survey will be found in the Annual Report of the Council, printed in the YEAR BOOK of the Club for the current year.

The company, on the invitation of Lady Warwick, then paid a visit to Bigods Hall, formerly the county seat of Lord Fitzgerald, and now a Secondary and Agricultural School, founded by the Countess, and there they were entertained to tea by the Principal, Mr. T. Hacking, and Mrs. Hacking. Subsequently Mr. Hacking gave an explanation of the methods of the School, and described the curriculum, taking the visitors on a tour of inspection. The school, which is on the most modern lines, proved very interesting, and the work done there is evidently very thorough, embracing poultry-keeping, fruit culture, bee-keeping, and manual instruction, manurial experiments, and meteorological observations, etc.[1]

In the evening the main portion of the Company drove back to Bishops Stortford, for the return trains.

[The above is compiled from the excellent reports in the *East Anglian Daily Times* and the *Essex County Standard*.—ED.]

1 See reports of previous visits to the School in former volumes of ESSEX NATURALIST.

ANNUAL INSPECTION OF HAINHAULT FOREST AND 240th ORDINARY MEETING.

SATURDAY, JULY 22ND, 1905.

On this afternoon the fourth annual meeting of inspection of the newly-recovered lands of Hainhault Forest was held, the object being to watch the gradual upgrowth of the projected woodlands. Mr. E. N. Buxton was announced as leader, but was unfortunately prevented from attending by the illness of a near relative. Mr. Francis Dent very kindly undertook to fill his place, and Mr. Alfred Buxton was also present.

The party was a large one, and much interest was manifested in the work or reclamation. The party walked up from the Grange Hill station to Chigwell Row, crossing the Recreation Grounds and entering the woods at the part known as "Ethelstone's Forest." Then a ramble was taken through the older woodlands, viewing the new or newly cleared rides, and improvements made in removing the old and diseased undergrowth, etc. At the gate near Cabin Plain the recovered lands were entered, and Mr. Dent gave a series of peripatetic demonstrations on the work now being carried out in laying down grass so as to obtain a good surface for future planting. The first part of the area visited showed a capital growth of gorse and heather; the seedlings, however, had only thriven where protected by scrub from the cattle put on by commoners in the exercise of their rights. On the way up to Cabin Hill, on the Lambourn side, several old enclosures were met with. These had been illegally cleared in the old days, and were now restored to the forest. Up to this point, on the top of the hill, all that had been done was the removal of some of the inferior pollards, and the opening up of some glades. From this spot there is a good view over the Dog Kennel Hill, where the problem of converting arable into forest land is being dealt with.

Tea was taken in the great barn at Foxborough Farm, and afterwards an ORDINARY MEETING (the 240th) was held, the President, Mr. Miller Christy, F.L.S., in the chair.

New Members.—Mr. Guy Maynard, Curator of the Saffron Walden Museum (on behalf of the Committee of the Museum), and Mr. F. T. Sturdy, "*Surinam*," *Holly Bush Hill*, *Snaresbrook*, were elected.

The President expressed the regret of the Club at the absence of Mr. Buxton and its cause, and said that the experiments in re-afforesting now being carried out would have a wide and permanent interest.

Mr. Dent then gave an interesting and valuable detailed account of the methods and results of the work on the open lands, and of the difficulties and successes experienced. The great difficulty was the establishment of good turf, with the character of the virgin turf of Epping. At first he was in favour of inoculation, but it was found that the expense of labour and cartage was a bar to that method. Mr. Buxton had resolved that this should be more or less open down-land, with patches of gorse and thorns. Experts had been consulted with respect to the production of a forest turf; few of them grasped the problem, and recommended grasses better adapted for agricultural purposes. Some turf had been brought from Epping, and this consisted principally of bent, fine-leaved grasses and sheep's fescue. It was decided that native grasses should be sown Some of the land had been treated with basic slag, with good results. Quitch and slender foxtail would probably disappear here, as they had done in Epping

Forest. It would be a good many years before a uniform turf was produced, for cattle grazed unevenly. The seedlings in the experimental plots had not done well, perhaps from the great growth of weeds, or from a want of humus in the soil. Mr. Dent spoke in terms of warm commendation of the manner in which the tenant of the farm had carried out Mr. Buxton's instruction. He also gave some interesting details about the fauna of the new ground. A litter of fox cubs had been found, and there was reason to hope that badgers might come over from Epping. There had been an extraordinary number of partridges at Lambourn and Hainault; linnets were abundant, and the goldfinch had become a regular breeder in the district—indeed, he knew of five nests this season within half a mile of his house. He had seen a pair of kestrels and a pair of sparrow-hawks, and nightingales were plentiful.

The President, in proposing a vote of thanks to Mr. Dent for his services that afternoon, and for the paper he had read, discussed some of the points raised by this valuable series of experiments. He thought that Mr. Dent's remarks should be published in the ESSEX NATURALIST, as they would prove of value in future years as a record of the reclamation.

Attempted Partition of the County.—He also alluded to the attempt which had been made to sever part of Essex from them, and to include the parishes in Hertfordshire. The Club, in common with the Essex Archæological Society and other bodies, had made a vigorous protest, and had written to the local members of Parliament on the subject. He was glad to say that the opposition had proved successful, and the order of the Local Government Board had not been confirmed by Parliament.

Professor Meldola, F.R.S., cordially seconded the vote of thanks, and fully supported the idea that Mr. Dent's notes should be published. He suggested that supplements might afterwards be issued, recording the progress of the experiments from year to year.

After the meeting Mr. Dent gave some further demonstrations in the field, and the members walked down to the station for the return trains.

ANNUAL FUNGUS FORAY.

SATURDAY, OCTOBER 14TH, 1905.

This meeting was held at the "King's Oak" Hotel, High Beach, Epping Forest, under the arrangements common to the Foray for many years past. A room was reserved at the Inn, wherein the specimens collected were determined and classified.

The first collecting party started from Chingford Station in the morning at 11.30. Great regret was expressed at the absence of Dr. Cooke, who was unable to undertake the fatigue of a long day in the Forest.

Mr. George Massee, F.L.S. (*President of the British Mycological Society*), kindly undertook to act as principal Botanical Conductor, and we were favoured with the company of a considerable number of well-known Botanists, including Mr. A. Lister, F.R.S., and Miss Lister, Dr. D. H. Scott, F.R.S., *Secretary to the Linnean Society*, Mr. E. M. Holmes, F.L.S., Professor Silvanus Thompson, F.R.S., Mr. W. M. Webb, F.L.S., and many others.

The afternoon party assembled at Theydon Bois, and rambled through the woods to High Beach, collecting by the way.

Mr. Massee named and arranged the specimens. Fungi were less plentiful in individuals than on some previous occasions, but the *species* noted were somewhat numerous, 265 in number, and included several new to the Forest list, and some very rarely met with. Mr. Massee reported that "perhaps the beautiful specimens of *Hydnum imbricatum* L. and *Polyporus rufescens* Berk. were of the greatest interest. Both are rare everywhere in England, and the latter is very seldom met with outside the forest. Among the Agarics the genus *Tricholoma* was represented by no fewer than ten species, perhaps a record number for the Forest. Of these *Tricholoma oreinum*, Fr., *T. boreale*, Fr., and *T. subpulverulentum*, Pers., are new Forest records, I believe."

"Among Micro-Fungi determined afterwards were *Helicomyces roseus*, Link, and *Tetrasporia aristata*, B. and Br.; these are also new to the Forest."

Demonstrations on the many fine specimens in the room were freely given during the afternoon by the many skilled botanists present.

Tea was taken about 5.30, and on returning to the exhibition room, Mr. Massee gave an Address on some recent researches on "Diseases of Fruits," mainly those caused by various minute funguses. He demonstrated the very interesting life-histories of several of these fungi, and discoursed of the best methods to be adopted in resisting their attacks. The address was illustrated by a set of very beautiful original colour drawings from Mr. Massee's own pencil.

The President, Mr. Miller Christy, F.L.S., proposed a vote of thanks to Mr. Massee for his great services during the day, and for the exposition he had just given of a subject of the greatest value to gardeners and farmers in the county.

The company separated about eight o'clock, after a most interesting and successful meeting. The forest had never looked better at any previous "Foray," and the excellent outcome of the forestal operations in former years was apparent in the vigour and luxuriance of the trees and undergrowth.

THE 241st ORDINARY MEETING.

Saturday, October 28th, 1905.

The first meeting of the winter session was held on this evening in the Physical Lecture Theatre of the Municipal Technical Institute, Stratford (by kind permission of the Education Committee, and the Principal, Mr. Hogg), at 6.30 p.m. The President, Mr. Miller Christy, F.L.S., occupied the chair.

New Members.—Mr. A. F. Hogg, M.A. (*Principal of the Technical Institute*) and Dr. T. Battersby Jobson, were elected members.

Rocks and Minerals Presented.—Mr. W. H. Dalton, F.G.S., F.C.S., exhibited and presented a collection of specimens of Rocks and Minerals intended to fill vacancies in the type collection so instructively arranged by Mr. Reader in the gallery of the Museum. The series comprised about 40 specimens, and Mr. Dalton gave a brief description of them. He has since sent in a detailed account of the specimens for preservation in the Register of the Museum. Mr. Thomas W. Reader also made some remarks on the collection. A vote of thanks was passed to Mr. Dalton for his kind donation.

Etching by Landseer Exhibited.—Mr. Miller Christy, F.L.S., exhibited an etching of "a French Hog, the property of Mr. Bacon, of the 'Black Boy' Inn, Chelmsford, published August 1st, 1818, by W. H. Simpson." The

picture is inscribed as having been painted by Edwin Landseer and etched by Thomas Landseer. These were the late Sir Edwin Landseer and his brother, when boys, then living at Beeleigh Abbey, Maldon. The print is very rare, and Mr. Christy knew of one other copy only, which is in the British Museum.

Old Boundary Stones of Waltham Forest.—Professor Meldola, F.R.S., exhibited a series of recent photographs of the old boundary stones of the Forest of Waltham which had been placed in his hands by Mr. Campion, of Walthamstow. Professor Meldola alluded to his paper on these stones, published some years ago in the ESSEX NATURALIST, and reiterated the opinion then expressed that such interesting relics should be preserved, either by the Forest authorities or the Essex County Council.—It was agreed that this matter should be brought forward at a subsequent meeting.

Denudation of the Coast at Cromer.—Mr. John Spiller, F.I.C., exhibited four photographs of Cromer and the beach (looking south) showing the headland or promontory near Overstrand, where the great landslip occurred in May and August, 1904, when an estimated total of 150,000 tons of earth fell into the sea. The views were taken about 20 years ago by Mr. Marley.

Queen Elizabeth's Lodge in 1794.—Mr. John Avery presented to the Club, for the Epping Forest Museum, an old print of Queen Elizabeth's Lodge, Chingford. This print is presumed to be dated 1794, and presents an aspect of the old Tudor building, differing from any print in the possession of the Club.

Norsey Wood, near Billericay.—Dr. Salter, F.G.S., presented, through Mr. T. W. Reader, some specimens of ancient pottery from Norsey Wood, near Billericay, Essex. Mr. J. Chalkley Gould made some remarks on the wood. The remains there are very interesting from an antiquarian point of view, and showed evidences of occupation by British, Roman, Saxon, and later peoples. The site would well repay careful scientific examination.

Mr. W. Cole said that the interesting nature of the remains in Norsey Wood had been repeatedly pointed out to him by the late Colonel Branfill. The Colonel had contributed some remarks on the subject to the Essex Archæological Society (*Trans. E. Arch. Soc.* Vol. V., N.S., pp. 226—36).

Presentations to the Library.—The Hon. Librarian (Mr. T. W. Reader) announced some important contributions to the Library, including a subscription copy, in white vellum, of Godman's *Mediæval Architecture in Essex*, presented by Mr. Andrew Johnston, J.P., and complete sets of the *Journal of the Anthropological Institute* (new series) 1899 to date, and of *Man*, presented by Mr. T. V. Holmes, F.G.S.

Vote of Thanks to Mr. A. E. Briscoe—On the motion of the President, supported by Prof. Meldola, F.R.S., and Mr. Walter Crouch, F.Z.S., a cordial vote of thanks was accorded to Mr. A. E. Briscoe, B.Sc., A.R.C.Sc., etc., the late Principal of the Municipal Technical Institute, for his uniform kindness and sympathy in connection with the work of the Museum, and for his valuable services in the cause of education and the progress of Natural Science in the district.

Votes of thanks were also passed to the exhibitors and donors of books and specimens.

Paper Read—Mr. I. Chalkley Gould then read a paper entitled "Straw Plaiting: A lost Essex industry."—During the reading of the paper Mr. Gould

gave demonstrations of the methods employed in preparing the straw, and exhibited the little bone cutters used in splitting the straws, and the wooden "mills" for flattening the strips before plaiting. Mr. Gould said that he was largely indebted to Mr. Miller Christy for statistical details of the rise and decay of this interesting rural industry, and Mr. Christy also spoke, supplementing the author's remarks with much local information.

A discussion took place, in which Prof. Meldola and Mr. Corcoran joined.

A vote of thanks was passed to Mr. Gould for the paper, which will be printed in the ESSEX NATURALIST.

British Science Guild.—Prof. Meldola called attention to the meeting to be held on Monday next at the Mansion House, under the chairmanship of the Lord Mayor, for the establishment of what bids fair to be a very important body —the British Science Guild—and commended this departure to the members and to all interested in science and education in the county.

THE 242nd ORDINARY MEETING.

Saturday, November 25th, 1905.

This meeting was held in the Technical Institute, Stratford, at half-past six, Mr. Miller Christy, F.L.S., President, in the chair.

New Member.—Mr. George Ellis, of 59, *Woodlands Road*, *Ilford*, was elected a member.

British Science Guild.—The President alluded to the circular setting out the aims of the British Science Guild, which has been sent out to all members. The Guild had been successfully inaugurated at a meeting held in the Mansion House on October 30th. The President, in commending the Guild to the support of all wishful for the progress and diffusion of science in Britain, said that he was informed by Professor Meldola that the Essex Field Club was the first local society which had taken an active interest in the Guild by circulating the prospectuses in the way indicated.

Straw-Plaiting Mill.—A straw-plaiting mill from Essex was exhibited which had been presented to the Club by Mr. Bryan Corcoran. Subsequently to the making of the mill it had been fitted with a hopper, so as to be used as a mill for crushing hemp-seed for feeding birds.

Rare Essex Birds.—Mr. Miller Christy presented a specimen of the Little Auk (*Mergulus alle*) shot at Lindsell Hall, near Dunmow, about 1871, and a Golden Oriole (? female or young) shot at the same place on May 22nd, 1883. Both these birds are recorded in Christy's *Birds of Essex*.

Mammals recently acquired for the Museum.—The Secretary exhibited some remarkable animals recently purchased for the Mammalian collection. These included a wild Albino Rabbit, cream-coloured and puce-coloured varieties of the common Mole, the Pigmy Shrew (*Sorex minutus*), and a specimen of the new British Vole, *Microtus orcadensis*, from the Orkney Islands.

Original Drawings for Godman's Norman Architecture of Essex.—Mr. Avery exhibited the original drawings made for this work which he had

recently acquired, and he and Mr. Christy made some remarks on the same.

Thanks were accorded to the donors and exhibitors.

Papers read.—Mr. F. W. Rudler read his report as Club's Delegate at the meetings of the Corresponding Societies Committee of the British Association held in London on October 30th and 31st last.

A discussion ensued on some points in Mr. Rudler's report, particularly as to the preservation of wild flowers, started by Prof. Meldola, and in which the President, Mr. Wilson, Mr. W. Cole, and others part.

A cordial vote of thanks was passed to Mr. Rudler for representing the Club as Delegate at the Conference and for his report (*ante* pp. 152—54).

Lecture.—Mr. F. Martin-Duncan then delivered a lecture entitled "In Demeter's Garden; or the Romance of Plant-life." The lecture was fully illustrated by lantern-slides from the lecturer's own photographs.

A discussion was carried on by the President, Prof. Meldola, Mr. Barnard, and Mr. F. W. Elliott. The Lecturer described the methods employed in taking the instantaneous photographs he had shown.

A vote of thanks was passed to Mr. Duncan, and the meeting ended.

THE 243rd ORDINARY MEETING.

Saturday, January 27th, 1906.

The third meeting of the Winter Session was held as usual, the President in the chair.

New Member.—Mr. Ellis Edwards, of *Graham House, Cephas Street, Mile End. E.*, was elected a member.

Photographs taken at Meetings of the Club.—Prof. Meldola presented some photographs taken in former years in connection with the Club's meetings and explorations. He added, as a little personal matter, that one picture recorded the first meeting of himself and the Hon. Secretary in Epping Forest, many years before the foundation of the Club.

Flint Implements and Fossils from Clacton.—The Secretary exhibited a small collection of flint implements and fossil bones, collected and presented to the Club by Master Randall, a pupil of Clacton College. These bones had been identified by Mr. E. T. Newton, F.R.S. The Secretary mentioned that Mr. Newton had very kindly examined the whole of the Pleistocene and other fossil bones in the Museum. The Club was much indebted to him for this service.

Honey Buzzard from Kelvedon.—The Secretary also exhibited a Honey Buzzard from Kelvedon, Essex, which had been purchased from Mr. Ambrose. Also several very interesting examples of Mimicry and Protective Resemblance which had been recently acquired for the Museum.

Professor Meldola, Mr. W. H. Dalton, F.G.S., Mr. E. T. Newton, F.R.S., Mr. F. W. Reader, and the President, spoke anent the various exhibits, and thanks were passed to the donors.

Lecture.—Professor Meldola having taken the chair, Mr. Christy delivered a lecture on "Methods of Fire-making, Ancient and Modern." The lecturer treated of the fire-drill, fire-saw, fire-plough, flint-and-steel, "instantaneous lights," the modern friction-match, &c.,

A very large number of specimens were shown by Mr. E. Bidwell, who possesses the finest collection, probably, of objects illustrating the history of fire-making appliances in existence. The lecturer also exhibited some specimens, and others were shown by the Secretary, brought from the Club's Museum. The lecture was also further illustrated by a series of slides shown by the electric lantern.

The Lecturer was much applauded by the large meeting, and afterwards a discussion on special points was carried on by Professor Meldola, Mr. W. H. Dalton, Mr. Walter Crouch, Mr. T. W. Reader, Mr. W. M. Webb, Mr. Bidwell, Mr. F. W. Rudler, Mr. Christy, and others. And a very cordial vote of thanks to the President for his lecture was passed by acclamation.

THE 244th ORDINARY MEETING.

SATURDAY, FEBRUARY 24TH, 1906.

The fourth meeting of the Winter Session was held in the Technical Institute as usual, at 6.30 o'clock, the President, Mr. Miller Christy, F.L.S., in the chair.

New Members.—Mr. Frederick W. Evens, 27, *Stanley Gardens, Hampstead, N.W.*; Mr. Percy G. Thompson, *Derwent House, High Road, Loughton*; and Mr. S. Hazzledene Warren, F.G.S., *Sherwood, Loughton*, were elected.

Dipteron Injurious to Daffodils.—Mr. Chittenden exhibited specimens of the fly, *Merodon equestris*, and made some remarks upon the same, which will be embodied in a "Note." Mr. W. Cole pointed out the remarkable "bee-like" appearance of the fly, as suggesting a case of mimicry.

Flint Implements from Braintree and Mammalian Bones from Clacton.—The Rev. J. W. Kenworthy sent for exhibition a small collection of flint implements from Braintree, including three which he was inclined to think were earlier than the usual Thames and Ouse well-formed implements. Also a small lot of Mammalian bones from the submerged forest at Clacton.

Mr. Whitaker, F.R.S., pointed out that the beds at Clacton were quite distinct from those known to Geologists as "Forest Beds," (See *Geol. Mag.*, Vol. v., p. 214, and *Geol. and Arch. of Walton Naze and Clacton*, by H. Stopes, F.G.S., and W. H. Dalton, F.G.S.).

Hairy-armed Bat in Essex.—Mr. Cole exhibited a specimen of *Vesperugo leisleri*, which had been detected amongst skins of bats, presented by Mr. Reginald Christy. See "Notes."

Skomer Vole.—Mr. Cole also exibited a skin of this vole (*Microtus orcadensis*), which had been given to him by the describer, Mr. J. G. Millais, F.Z.S.

The President made some remarks upon the exhibits, and referred to the doubtful position of the Skomer Vole as a distinct species.

Mr. W. M. Webb, F.L.S., however, said that he had had an opportunity of observing the Skomer Vole in captivity, and from its general appearance and habits he was disposed to consider it entitled to rank as a species.

On the motion of the President cordial votes of thanks were accorded to the exhibitors.

Papers Read.—Mr. F. J. Chittenden read a paper on "The Mosses of Essex: a Contribution to the Flora of the County." Mr. Chittenden had undertaken to examine the collections of Mosses in the possession of the Club, and to collate them with other records from the County, and the present paper was the result of his labours. He had also very kindly promised to arrange the collections of mosses in the Museum, and he exhibited some sheets for the herbarium already completed.

The President warmly thanked Mr. Chittenden in the name of the Club for an excellent piece of work.

Remarks on the paper (which will appear in the ESSEX NATURALIST) were made by Mr. Paulson, Mr. Barnard, and Mr. J. Wilson, and Mr. Chittenden replied.

Mr. T. V. Holmes, F.G.S., then read a paper entitled "Mysterious Subsidence at Mucking, Essex, and Miscellaneous Denehole Notes, 1906."

Mr. W. Whitaker, F.R.S, made some remarks on points in the paper, and a hearty vote of thanks was passed to Mr. Holmes.

THE 26th ANNUAL MEETING AND SPECIAL MEETING.

SATURDAY, APRIL 7TH, 1906.

These meetings were held at the Municipal Technical Institute, Stratford, at 4.30 p.m., Mr. Miller Christy, F.L.S., President, in the chair.

Minutes.—The minutes of the 25th Annual Meeting, held on April 8th, 1905, and printed in the ESSEX NATURALIST, vol. xiv., pp. 68-9, were read and confirmed.

Annual Report of Council.—This is printed in the YEAR BOOK for 1906-7, at pp. 17-18.

Financial Statement.—Mr. Howard, the Hon. Treasurer, presented the Annual Statement, which is also printed in the YEAR BOOK, p. 19.

On the motion of Prof. Meldola, seconded by Mr. Spiller and Mr. Walter Crouch, the report and statement were adopted.

Tea Fund.—The Secretary presented the account of the Tea Fund for the Session 1905-6.

Members of Council and Officers Elected.—At the meeting on February 24th last, the following Members retired from the Council:—Messrs. Shenstone, Spiller, Varley, McLachlan, Elliott, and Dr. Mason; and the following were nominated as new Members of the Council:—Messrs. Bryan Corcoran, Hugh McLachlan, A.R.I.B.A., D. J. Scourfield, F.R.M.S., J. C. Shenstone F.L.S., John Spiller, F.I.C., F.C.S., and F. H. Varley, F.R.A.S. As officers for 1906, the following were nominated:—*President*, Mr. Miller Christy, F.L.S.; *Treasurer*, Mr. David Howard, J.P., F.C.S., Pres. I.C.; *Hon. Secretaries*, Mr. W. Cole and Mr. B. G. Cole; *Librarian*, Mr. Thomas W. Reader, F.G.S.; *Auditors*, Mr. Walter Crouch, F.Z.S., and Mr. J. D. Cooper. No other Members having been proposed, the above-named stood elected as Members of the Council and Officers for 1906, and were so declared by the Chairman.

The President intimated that he would reserve his Address until the evening meeting.

SPECIAL MEETING.

The meeting was then declared a Special one (in accordance with the intimation sent to members by circular) for the consideration of the following ALTERATION IN THE RULES, proposed by the Council :—

In Rule X., after the words, "*January in each year*," insert the following :—

"Provided, nevertheless, that any two or more members of the same family, who reside in the same house, and are willing to receive between them only one copy of the Club's Publications, may become Ordinary Members of the Club, and shall enjoy all the privileges of Membership (except that they shall receive between them only one copy of the Club's Publications, as above) in return for the usual Entrance Fee in respect of each Member (in the case of new Members), and a joint Annual Subscription of One Guinea for the first two Members and Six Shillings annually for each additional Member."

The President explained the reasons which had led the Council to recommend this alteration, and proposed it on behalf of the Council. The motion was seconded by Professor Meldola, F.R.S., and Mr. Howard, and carried unanimously.

Thanks to the President, the Council, and Officers.—Prof. Meldola proposed that the cordial thanks of the Club should be accorded to Mr. Christy for his services as President during the year. He said that all members of the Club who attended any of the meetings would heartily concur in his appreciation of the care the President had given to its affairs, and the business ability he had exercised as its head.

Mr. W. M. Webb seconded the motion most heartily, and proposed that the vote should include all the officers and members of the Council who had devoted so much care and attention to the affairs of the Club.

Prof. Meldola agreed to this, and the vote was carried by acclamation.

The President returned thanks on his own behalf and on behalf of his colleagues on the Council and the Officers.

The meeting then adjourned until the evening.

THE 245th ORDINARY MEETING.

SATURDAY, APRIL 7TH, 1906.

This meeting was held at the Technical Institute, Stratford, at half-past six, Mr. Miller Christy, F.L.S., President, in the chair.

New Members.—Mr. Herbert O. Jacobs, 133, *Osborne Road*, *Forest Gate*, and Mr. Herbert E. Rains, 5, *Sackville Gardens*, *Ilford*, were elected members.

Black Rat in Essex.—Mr. W. Cole exhibited two specimens of *Mus rattus* which had been sent to him by Mr. Pettitt, the taxidermist, from "a locality in Essex." The records of the capture of this species in the county were very few, with the exception of specimens from the docks on the Thames, where sometimes Black-Rats, which were presumably escapes from foreign-going ships, were caught.

Mr. Christy remarked that the specimens exhibited seemed to his eyes hardly typical, and he suggested that they might be hybrids between the true *M. rattus* and the Brown Rat (*Mus decumanus*).

De Winton's Mouse at Lexden.—Mr. Cole also exhibited two specimens of the Yellow-necked Mouse (*Mus sylvaticus-wintoni*) from Lexden, near Colchester.

Essex Birds.—Mr. Cole also exhibited (1) the Red-throated Diver (*Colymbus septentrionalis*); (2) the Black-headed Gull (*Larus ridibundus*); and (3) the Guillemot (*Lomvia troile*), all from the estuary of the Thames, off Southend, These were all presented in the flesh to the Museum by Mr. Sherrin, of Southend.

Deep Boring at Ilford Gas Company's Works.—Mr. Walter Crouch, F.Z.S., detailed some observations made at this boring. The notes were of a preliminary nature, but Mr. Crouch promised more definite information later.

A discussion took place in which the President, Mr. T. V. Holmes, F.G.S., Professor Meldola, F.R.S., Mr. John Spiller, F.I.C., Mr. E. T. Newton, F.R.S., Mr. Reader and others took part, and Mr. Crouch replied.

Large Bone of a Whale at Mountnessing, Essex.—Mr. Christy exhibited, by the aid of the lantern, a photograph of a large bone which had for many years reclined beside the font in Mountnessing Church. He had submitted the photograph and a description of the bone to Mr. E. T. Newton, F.R.S., who was present. It had been put down in the Guide-books as an Elephant's or Mammoth's bone, but Mr. Newton was of opinion that it had belonged to a Whale—probably the rib of a Sperm Whale (*Physeter*) or to a Rorqual (*Balænoptera*), perhaps brought as an offering from some whaling ship in the Thames.[1]

Bone "Needle."—Mr. H. Mothersole exhibited a curious object resembling a bone "needle," which had been found in an excavation at Chelmsford. Mr. F. W. Reader made some remarks on this specimen, but these are reserved until a figure and further details can be given.

Remarks by the President, and Paper on Salt-making in Essex.—Before reading his paper the President made a few general observations on the work of the Club. He considered that they continued fully to justify their existence as a county society; the work done, and progress made during the past year had been very considerable. The Essex Museum of Natural History was developing rapidly, and he particularly called attention to the growing collection of British Mammals, which when completed, would be a very remarkable feature, and one indeed almost unique among the local museums of this country. Under Mr. T. W. Reader's skilful and persevering efforts our library is being rapidly put into order, and promises to become of considerable importance as a collection of books relating to our special subjects.

The papers and lectures have been as numernus as usual, and although some of them have been of a general nature, there is no fear of the supply of original papers relating to the natural history and archæology of Essex falling short.

One very important matter which is now engaging the attention of friends of the Club is the necessity of gaining new members. To our great regret many old and esteemed members have died within the last few years, and it is a prime necessity that their vacant places should be filled up by persons taking an equally warm interest in the Society. It is to be hoped that the recently-established YEAR BOOK, although a somewhat costly item, will aid in attracting members,

1 In the *Strand Magazine* for May, 1906, is a photograph of a similar rib, still to be seen in St. Mary's Redcliffe Church, Bristol. Legend has it that this is a rib of the celebrated Dun Cow, which supplied all the parish with her milk in the days long ago.

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Zoologist, May 15th, 1906.

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